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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,533	07/31/2001	John Frederick Hayfield	CRYO/US-56	4377

22875 7590 10/01/2002

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EXAMINER

CUEVAS, PEDRO J

ART UNIT PAPER NUMBER

2834

DATE MAILED: 10/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/919,533

**Applicant(s)**

HAYFIELD, JOHN FREDERICK

**Examiner**

Pedro J. Cuevas

**Art Unit**

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 10-19 is/are rejected.
- 7) ☒ Claim(s) 5-9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \*   c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.                      6) ☐ Other: .

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## DETAILED ACTION

### *Specification*

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Magnetic Hollow Cylindrical Sleeve Assembly Having Beveled Bearing Surfaces On Magnets.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 10-12, 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,642,088 A to Unger in view of U.S. Patent No. 5,907,200 A to Chitayat.

Unger disclose the construction of a magnet support sleeve, comprising:

a hollow cylindrical metal support sleeve (22);

at least one/a plurality of magnet/s (20) positioned on a surface (24) of said support sleeve;

at least one mounting bracket (32) fastened to said support sleeve;

at least one angled lip (100) on said at least one mounting bracket contacting said at least one beveled bearing surface on said at least one magnet, thereby holding said at least one magnet in place on said support sleeve; and

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at least one/a plurality of slot/s (26) formed through a wall of said support sleeve, said at least one slot being oriented substantially parallel to the longitudinal axis of said support sleeve.

However, it fails to disclose:

at least one/two beveled bearing surface/s on said at least one/each magnet, said bearing surface being beveled at a first acute angle relative to said support sleeve.

Chitayat teach the construction of a linear encoder having at least one/two beveled bearing surface (42) on the magnets, said bearing surface being beveled at a first acute angle for the purpose of producing an increasing or decreasing magnetic field as the encoder moves onto or off a sensor.

It would have been obvious to one skilled in the art at the time the invention was made to use the tapered magnets disclosed by Chitayat on the magnet support sleeve disclosed by Unger for the purpose of producing an increasing or decreasing magnetic field as the encoder moves onto or off a sensor.

With regards to claims 4, 15 and 16, it would have been obvious to one having ordinary skill in the art at the time the invention was made to set the first acute angle greater than the second acute angle, and between two and four degrees, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

4. With regards to claim 17, it would have been obvious to one having ordinary skill in the art at the time the invention was made to set the first acute angle to be about 45 degrees, since it

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has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

5. With regards to claims 18 and 19, Unger in view of Chitayat disclose:

each said angled lip contacts each said beveled bearing surface along a single line of contact; and

the north poles of said plurality of magnets are oriented radially outwardly from said support sleeve.

***Allowable Subject Matter***

6. Claims 5-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach each said bearing surface being contacted by said at least one lip on said at least one mounting bracket, angled at a second acute angle relative to said support sleeve, to hold said plurality of magnets in place on said support sleeve, as claimed in dependent claim 5.

8. Claims 6-9 are considered allowable by their dependence on objected claim 5.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

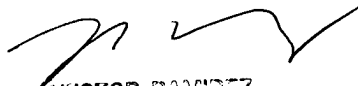
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pedro J. Cuevas whose telephone number is (703) 308-4904. The examiner can normally be reached on M-F from 8:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor R. Ramírez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-1341 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Pedro J. Cuevas  
September 24, 2002



NESTOR RAMIREZ  
SUPERVISOR, PATENT EXAMINER  
TECHNICAL SERVICES SECTION 2834